

What is claimed is:

1. An alkaline storage battery comprising:

a cylindrical metal case one end of which being circular and closed the other end being open;

a positive plate having a protrusion made by projecting out one side edge along the longitudinal direction of said positive electrode;

a negative plate having a protrusion made by projecting out one side edge along the longitudinal direction of said negative plate;

a separator having insulating properties;

an upper metal current collector for collecting current from a positive electrode side and having a cap-shaped terminal;

a bottom metal current collector for collecting current from a negative electrode side; and

a sealing plate made of a metal with a hole formed at the center; wherein:

an electrode group is formed by spirally winding said positive plate and said negative plate with said separator interposed between them with said protrusion of said positive plate and said protrusion of said negative plate facing mutually opposite directions;

said electrode group is housed in said metal case after joining said protrusion of said negative plate with said bottom metal current collector, and said bottom metal current collector and the bottom of said metal case are joined;

said protrusion of said positive plate is joined with the bottom surface of said upper metal current collector;

said cap-shaped terminal of said upper metal current collector is disposed through a hole in the center of said sealing plate made of a metal, and said upper metal current collector and said sealing plate made of a metal are joined;

a predetermined quantity of an electrolyte is poured from above said electrode group; and

the periphery of said sealing plate is hermetically sealed with a gasket at the upper opening of said metal case.

2. The alkaline storage battery of claim 1 wherein said positive plate contains a nickel compound, said negative plate contains a hydrogen absorbing alloy, and said electrolyte is an alkaline electrolyte.

3. The alkaline storage battery of claim 1 wherein said metal current collector having said cap-shaped terminal is provided with a gas venting mechanism.

4. The alkaline storage battery of claim 1 wherein a resilient vent member is provided inside said terminal of said metal current collector having a terminal.

5. The alkaline storage battery of claim 3 wherein said gas venting mechanism of said metal current collector having said cap-shaped terminal includes incisions made in two to four directions from the periphery toward the center of said metal current collector and a resilient vent member located inside said terminal.

6. The alkaline storage battery of claim 1 wherein said sealing plate made of a metal is annular in shape having a hole in the center with a size at least equal to the size of said cap-shaped terminal of said upper metal current collector, and said cap-shaped terminal of said upper metal current collector passes through said hole to become a terminal for the positive electrode side.

7. The alkaline storage battery of claim 6 wherein asphalt is coated in a gap between said upper metal current collector and said annular sealing plate made of a metal when joining said upper metal current collector and said sealing plate made of a metal.

8. The alkaline storage battery of claim 1 wherein the diameter of said metal current collector having said cap-shaped terminal is in the range  $1/5$  to  $4/5$  of the outer diameter of said metal case.

9. A method for manufacturing an alkaline storage battery the method comprising the steps of:

forming an electrode group by disposing a positive plate having a protrusion made by projecting out one side edge along the longitudinal direction of said positive electrode and a negative plate having a protrusion made by projecting out one side edge along the longitudinal direction of said negative plate in a manner such that said protrusion of said positive plate and said protrusion of said negative plate face mutually opposite directions, and spirally winding said positive plate and said negative plate with an insulating separator interposed, and fixing said electrode group by winding outer periphery thereof with a tape;

housing said electrode group into a cylindrical metal case one end of which being circular and closed and the other end being open after joining said protrusion of said negative plate and a bottom metal current collector for collecting current for the negative electrode side;

joining said bottom metal current collector joined to said protrusion of said negative plate of said electrode group and the bottom of said metal case;

joining said protrusion of said positive plate of said electrode group and an upper metal current collector having a cap-shaped terminal for collecting current for the positive electrode side;

disposing said cap-shaped terminal of said upper metal current collector to which said protrusion of said positive plate has been joined through a sealing plate made of a metal having a hole and joining from above;

pouring a predetermined quantity of an electrolyte from above said electrode group; and

hermetically sealing the periphery of said sealing plate made of a metal with a gasket at the upper opening of said metal case.

10. The method for manufacturing an alkaline storage battery of claim 9 wherein, when joining said bottom metal current collector and the bottom of said metal case, said bottom metal current collector welded to said protrusion of said negative plate and the bottom of said metal case are joined by inserting a welding rod through a hollow space in the center of said electrode group left by removing a mandrel after said electrode group has been wound.